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# Nebraska Monthly Economic Indicators: March 15, 2013

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## Nebraska Monthly Economic Indicators: March 15, 2013

Prepared by the UNL College of Business Administration, Department of Economics

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**Summary:** The Leading Economic Indicator – Nebraska (LEI-N) rose by 0.16% during February 2013. The slight increase in the LEI-N, which predicts economic growth in the state six months in the future, suggests modest economic growth in Nebraska in the summer of 2013. Looking at individual components of the LEI-N, there was strong growth in business expectations during February. Respondents to the Survey of Nebraska Business reported expectations for a solid increase in business sales and employment over the next six month. However, all other components of the LEI-N declined during February, albeit only slightly. Specifically, single-family building permits dropped modestly in February, after a strong increase in January. There also was a slight decline in airline passengers counts, an increase in initial claims for unemployment insurance, and an increase in the value of the U.S. dollar during February. The increase in the value of the dollar would tend to limit export activity in the coming months. Manufacturing hours were virtually unchanged between January and February, with only a slight decline in hours worked. The slight drop in 5 components, combined with a strong increase in business expectations, yielded the 0.16% overall increase in the LEI-N.

### Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in February 2013, compared to the previous month. The LEI-N, which predicts economic growth six months into the future, rose by 0.16% in February.

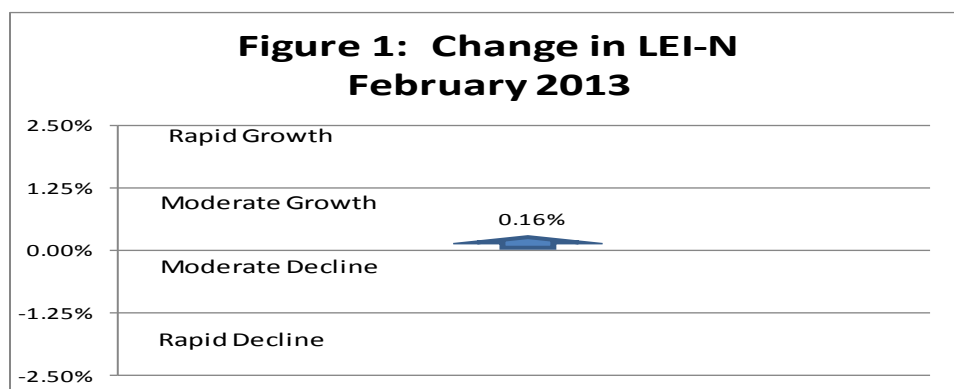


Figure 2 shows the growth in the LEI-N over the last 6 months. The figure shows that the leading indicator grew solidly in September and October, and declined in November. The indicator then increased in each of the last 3 months, though growth was modest. This six-month pattern suggests that the Nebraska economy will grow solidly in early 2013, but that growth will moderate in the middle of the year.

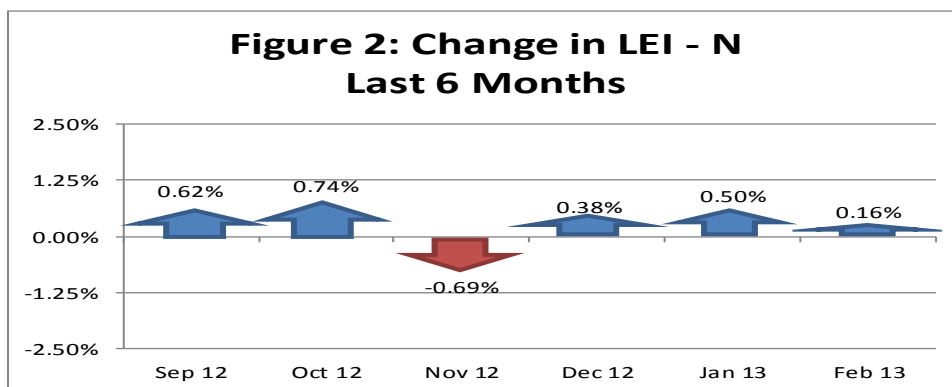
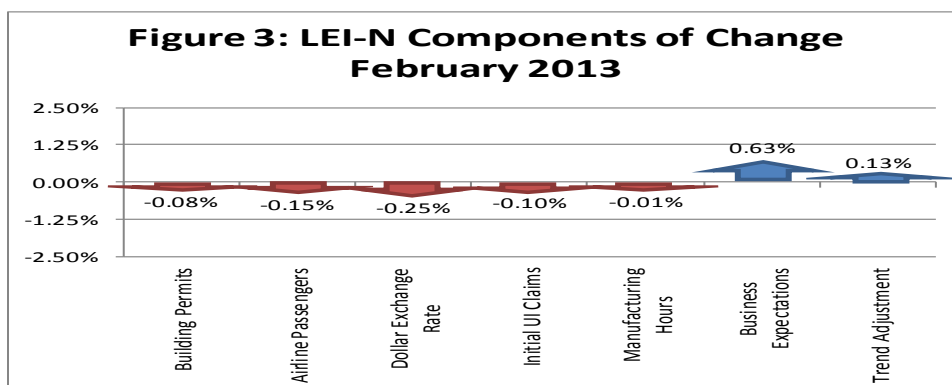
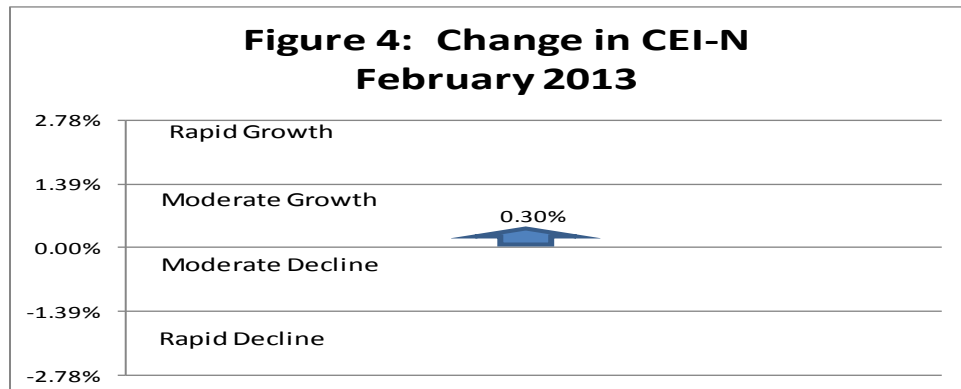


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during February 2013. The change in the overall LEI – N is the weighted average of changes in each component (see page 5). Only one component contributed to the increase in the LEI-N. In particular, there was a sharp improvement in business expectations in February. Respondents to the *Survey of Nebraska Business* reported that they expect solid improvements in sales and employment in their business over the next six months. The improvement in business expectations during February was the largest improvement in the 18 month history of the *Survey of Nebraska Business*. At the same time, each of the other 5 LEI-N components declined during February, though all declines were modest. There was a slight decline in single-family home building permits in February after a sharp increase in January. The housing recovery in Nebraska appears to remain on track. There also was a modest increase in initial unemployment insurance claims, a slight decline in airline passenger counts and an increase in the value of the U.S. dollar. The increase in the value of the U.S. dollar would tend to limit future export activity. There also was a very slight decline in manufacturing hours between January and February. Finally, note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

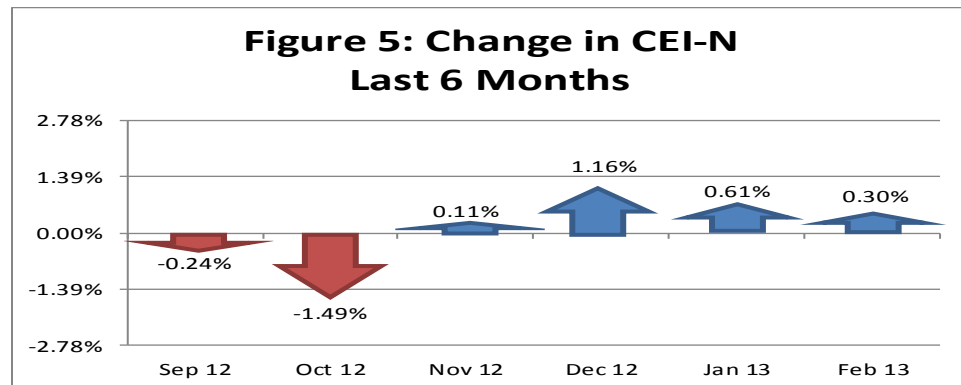


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. In Figure 4, the CEI-N rose by 0.30% between January and February of 2013.



As seen in Figure 5, the growth in the CEI-N during February represents continued improvement in the Nebraska economy late in 2012 and early 2013. Note that the improvement in the January CEI-N was predicted by growth in the LEI-N in September 2012 (see Figure 2).



As seen in Figure 6, a solid improvement in private wages and an increase in electricity sales contributed to the improvement in the CEI-N during February. Private wages grew in Nebraska during February as part of a national trend of growing employment and hours. Electricity sales were up even after adjusting for weather and other seasonal factors in February. Among remaining components, there was a decline in prices for agricultural commodities, though prices remain high. Further, respondents to the *Survey of Nebraska Business* reported a slight decline in sales and employment activity in recent months. A detailed discussion of the components of the CEI-N, as well as the LEI-N, can be found at [www.cba.unl.edu](http://www.cba.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

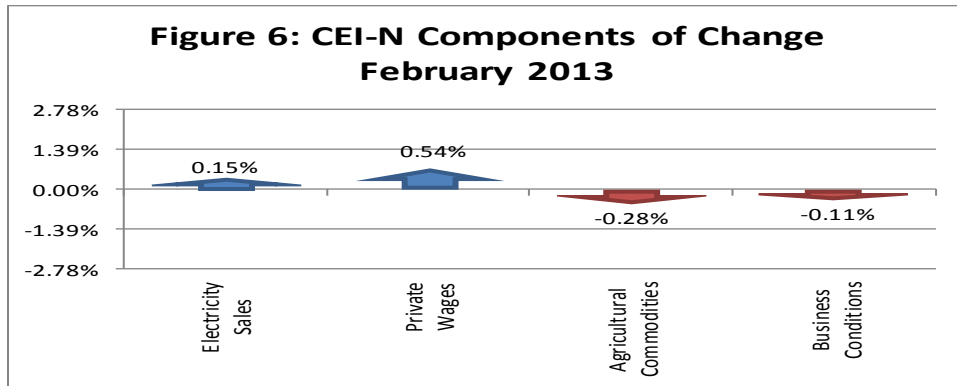
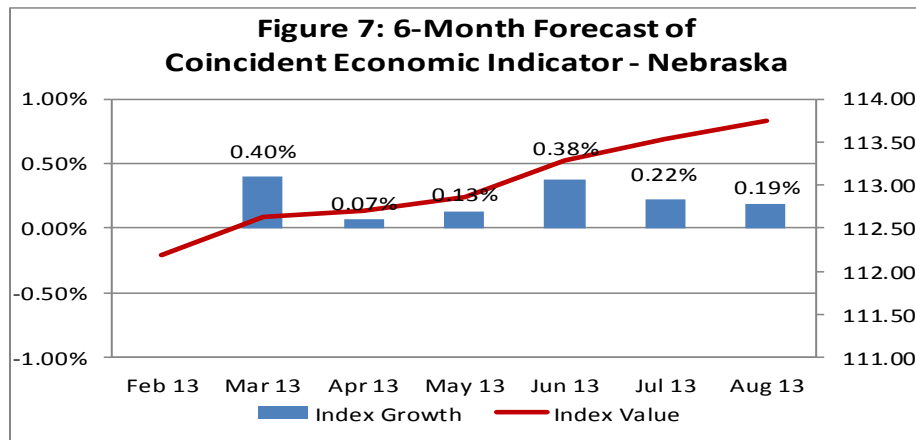


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast reflects changes in the value of LEI-N between September of 2012 and February of 2013 (see Figure 2). Recall that the LEI-N grew solidly September and October of 2012 but then declined in November. Slow growth returned in December of 2012 and January and February of 2013. This pattern suggests the Nebraska economy should continue to grow solidly through March of 2013 but then growth will moderate in mid-2013. These expectations are depicted in Figure 7.



## Weights and Component Shares

Table 1 shows the weights that were used to aggregate the individual components into the LEI-N and CEI-N. The weights are the inverse of the “standardized” standard deviation of each component variable. The term standardized simply means that the inverse standard deviations are adjusted proportionately to sum to 1. This weighting scheme makes sense since individual components that are more stable have smaller standard deviations, and therefore, a larger inverse standard deviation. A large movement in a typically stable economic series would provide a more powerful signal of economic change than a large movement in a series that regularly has large movements.

| <b>Table 1: Component Weights for LEI-N and CEI-N</b> |                           |                    |   |   |                           |                    |   |
|---|---------------------------|--------------------|---|---|---------------------------|--------------------|---|
| <b>Leading Economic Indicator - Nebraska</b>          |                           |                    |   | <b>Coincident Economic Indicator - Nebraska</b> |                           |                    |   |
| <b>Variable</b>                                       | <b>Standard Deviation</b> | <b>Inverse STD</b> | <b>Weight (Inverse STD Standardize)</b> | <b>Variable</b>                                 | <b>Standard Deviation</b> | <b>Inverse STD</b> | <b>Weight (Inverse STD Standardize)</b> |
| SF Housing Permits                                    | 14.3006                   | 0.0699             | 0.0328                                  | Electricity Sales                               | 4.7858                    | 0.2090             | 0.1621                                  |
| Airline Passengers                                    | 3.6287                    | 0.2756             | 0.1291                                  | Private Wages                                   | 1.7842                    | 0.5605             | 0.4347                                  |
| Exchange Rate   | 1.2379                    | 0.8078             | 0.3785                                  | Agricultural Commodities                        | 3.3185                    | 0.3013             | 0.2337                                  |
| Initial UI Claims                                     | 9.9216                    | 0.1008             | 0.0472                                  | Survey Business Conditions                      | 4.5754                    | 0.2186             | 0.1695                                  |
| Manufacturing Hours                                   | 1.4316                    | 0.6985             | 0.3273                                  |   |                           |                    |   |
| Survey Business Expectations                          | 5.5054                    | 0.1816             | 0.0851                                  |   |                           |                    |   |

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between January and February of 2013. Weights (from Table 1) are multiplied by the change to calculate the contribution of each component. Contributions are converted to percentage terms and summed. Note that in Table 2 a trend adjustment factor is utilized in calculating LEI-N. This is done because LEI-N historically under-predicts CEI-N by 0.13% per month. The U.S. Leading Economic Indicator also has a trend adjacent factor.

| <b>Table 2: Component Contributions to the Change in Leading Economic Indicator</b> |         |          |            |        |              |  |
|---|---------|----------|------------|--------|--------------|--|
| <b>Leading Economic Indicator - Nebraska</b>  |         |          |            |        |              |  |
| Component Index Value (May 2007=100)  |         |          |            |        |              |  |
| Component   | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous LEI-N) |
| SF Building Permits   | 79.25   | 81.70    | -2.46      | 0.03   | -0.08        | -0.08%   |
| Airline Passengers  | 90.83   | 92.05    | -1.22      | 0.13   | -0.16        | -0.15%   |
| U.S. Dollar Exchange Rate (Inverse)   | 104.98  | 105.67   | -0.69      | 0.38   | -0.26        | -0.25%   |
| Initial Unemployment Insurance Claims (Inverse)                                     | 73.20   | 75.46    | -2.26      | 0.05   | -0.11        | -0.10%   |
| Manufacturing Hours   | 90.43   | 90.47    | -0.04      | 0.33   | -0.01        | -0.01%   |
| Survey Business Expectations <sup>1</sup>   | 57.69   |          | 7.69       | 0.09   | 0.65         | 0.63%  |
| Trend Adjustment  |         |          |            |        | 0.13         | 0.13%  |
| Total (weighted average)  | 104.67  | 104.51   |            |        | 0.16         | 0.16%  |

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

| <b>Table 3: Component Contributions to the Change in Coincident Economic Indicator</b> |         |          |            |        |              |  |
|--|---------|----------|------------|--------|--------------|--|
| <b>Coincident Economic Indicator - Nebraska</b>  |         |          |            |        |              |  |
| Component Index Value (May 2007=100)   |         |          |            |        |              |  |
| Component  | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous CEI-N) |
| Electricity Sales  | 104.17  | 103.12   | 1.04       | 0.16   | 0.17         | 0.15%  |
| Private Wage   | 98.09   | 96.70    | 1.38       | 0.43   | 0.60         | 0.54%  |
| Agricultural Commodities   | 157.26  | 158.29   | -1.02      | 0.23   | -0.24        | -0.21%   |
| Survey Business Conditions <sup>1</sup>  | 49.29   |          | -0.71      | 0.17   | -0.12        | -0.11%   |
| Total (weighted average)   | 112.27  | 111.86   |            |        | 0.41         | 0.37%  |

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

## Performance of the LEI-N and CEI-N

Further information is available on both economic indicators to demonstrate how well the CEI-N tracks the Nebraska economy and how well the LEI-N leads the CEI-N. Figure 8 shows the value of CEI-N and the real gross state product (real GDP) in Nebraska for 2001 through 2011. The comparison ends in 2011 since this is the last year for which data on real gross state product is available. Annual real gross state product data is provided by the Bureau of Economic Analysis, U.S. Department of Commerce, and quarterly values were estimated using quarterly earnings data. CEI-N closely tracks Nebraska real GDP for the period. The correlation coefficient between the two pictured series is 0.94.

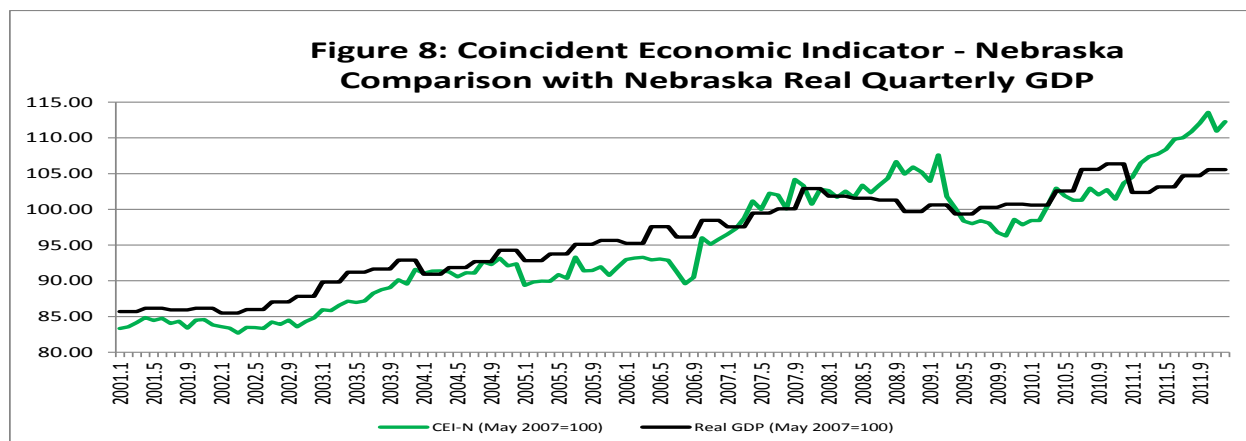


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months earlier) with the actual movement in CEI-N. In Figure 9, predicted values using the LEI-N closely track trends and movement in the CEI-N. The correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.91.

